R. H. FULTON.

PIPE WRENCH.

APPLICATION FILED DEC. 30, 1918. RENEWED OCT. 4, 1919.

1,327,595. Patented Jan. 6, 1920.

FIG. 1

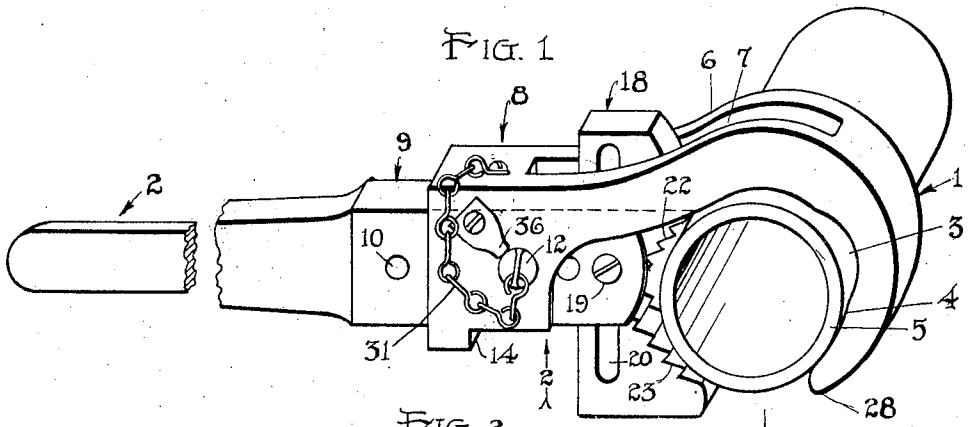


FIG. 2

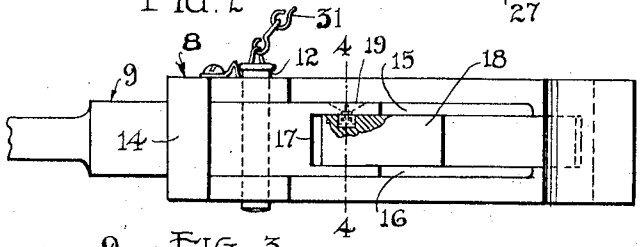


FIG. 3

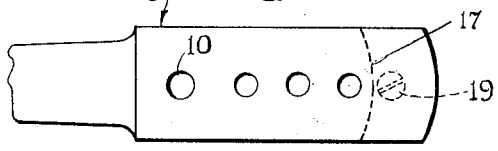


FIG. 4

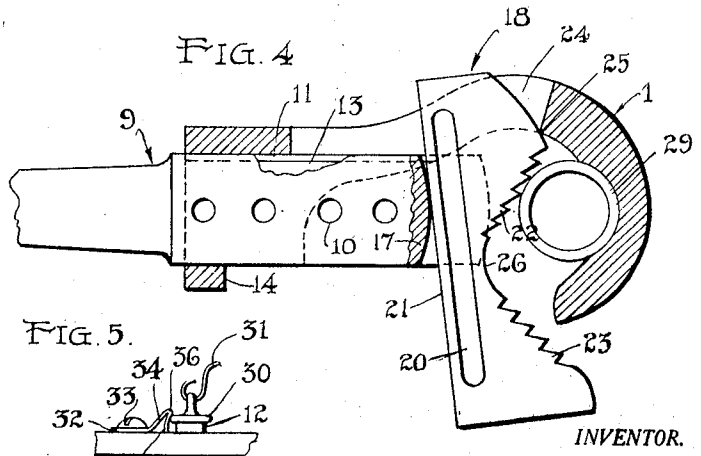


FIG. 5.

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PIPE-WRENCH.

1,327,595. Specification of Letters Patent. Patented Jan. 6, 1920.

Application filed December 30, 1918. Serial No. 268,970. Renewed October 4, 1919. Serial No. 328,586.

To all whom it may concern:

Be it known that I, ROBERT H. FULTON, a subject of the King of Great Britain, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to pipe wrenches and consists of the novel features herein shown, described and claimed.

An object of this invention is to make an improved adjustable and automatic pipe wrench which will work as well one side up as the other, and which will work in either direction.

Figure 1 is a perspective showing a pipe wrench embodying the principles of my invention in use upon a comparatively large pipe.

Fig. 2 is a bottom plan view of the wrench looking in the direction indicated by the arrow 2 in Fig. 1 with the pipe omitted.

Fig. 3 is a fragmentary side elevation of the handle removed from the head.

Fig. 4 is a sectional elevation on a plane parallel with Fig. 1 and showing the parts in operation with a comparatively small pipe.

Fig. 5 is a fragmentary enlarged elevation on the same plane as Fig. 2 and showing the retainer for the removable pin.

The jaw 1 is adjustably connected to, and normally rigid with, the handle 2. The jaw 1 is curved substantially to a semicircle in side elevation and has a smooth seat 3 for a comparatively small pipe, as in Fig. 4, and a comparatively smooth seat 4 for a larger pipe, as in Fig. 1, the large pipe 5 spanning the seat 3 when resting in the seat 4. A neck 6 extends from one end of the jaw 1 and has a slot 7 extending longitudinally a considerable distance and in a plane crosswise of the axis of the pipe. A socket head 8 is formed integral with the opposite end of the neck 6 from the jaw 1, and the handle head 9 is formed integral with the handle 2 and is slidably and adjustably mounted in the socket head 8 in a plane at right angles to the direction of the slot 7 and crosswise of the axis of the pipe. The handle head 9 is rectangular in cross section and has a series of pinholes 10 extending transversely and arranged in a line radial to the center of the pipe. The socket head 8 has a rectangular opening 11 radial to the pipe to receive the head 9 and has pinholes to receive the pin 12. The head 9 is adjusted relative to the head 8 by removing the pin 12, moving one head relative to the other and inserting the pin 12 through the head 8 and through the desired one of the pinholes 10.

The opening 11 is wider than the slot 7, and the extension bearing 13 extends from the opening 11 along the lower side of the neck 6 to the pipe seat 4, so that pressure downwardly upon the handle 2 will press the inner end of the head 9 upwardly against the extension bearing 13. The lower side 14 of the socket head 8 serves as the support for the head 9 when the handle 2 is pressed downwardly in doing hard work.

The inner end of the head 9 is slotted in line with the slot 7 to produce the supporting ears 15 and 16 and the rounded backing 17. The movable jaw plate 18 fits in the slot 7 and between the ears 15 and 16 against the backing 17. A screw 19 is tapped through the ear 15 and fits loosely in a recess 20 in one face of the jaw plate 18, so that the jaw plate may slide freely to the extent of the recess 20, and the recess 20 extends as far as it is desired that the jaw plate should move which is practically from one end to the other. The jaw plate 18 is made of flat material, preferably hardened tool steel, and has a straight rear side 21 fitting the rounded backing 17, a corrugated jaw 22 extending one way from the center and a second corrugated jaw 23 extending the other way from the center of the face opposite the face 21. A rounded guide face 24 extends from the outer upper end of the jaw plate 22 to engage the corner 25 at the forward end of the slot 7 and upper end of the rigid jaw 1. The teeth upon the jaws 22 and 23 point outwardly from the center 26 of the jaw plate and in opposite directions relative to each other.

When the wrench is turned with its mouth 27 downwardly, as in Figs. 1 and 4, and the head 9 is adjusted relative to the socket head 8 for a large pipe 5, the jaw plate 18 will drop downwardly to the limit of the recess 20, the wrench will pass downwardly with the pipe passing between the center 26 of the jaw plate and the point 28 of the rigid jaw 1; and then the jaw 22 will engage the pipe and raise the jaw plate and the pipe will fit in the seat 4; then the gravity of the jaw plate will cause the jaw 22 to engage

the pipe and upward motion of the handle 2 will rock the jaw plate upon the backing 17 until the upper half of the jaw plate is wedged between the backing and the pipe, and the teeth of the jaw 22 will grip the pipe and continued operation will rotate the pipe. Backward movement of the handle will loosen the jaw plate and cause the teeth of the jaw 22 to slip on the pipe like a ratchet. With the wrench in this position, if it is desired to rotate the pipe in the other direction, the jaw plate 18 is manually raised to bring the jaw 23 into engagement with the pipe and then downward movement of the handle will cause the teeth to grip the pipe and rotate the pipe. In either of these operations, the jaw plate 18 rocks upon the curved backing 17 until it wedges against the pipe and comes to rest.

In handling a small pipe, as in Fig. 4, the pipe 29 will fit in the seat 3. The head 9 is adjusted relative to the head 8 to bring the jaws up to the pipe, and in this operation the guide face 24 engages the corner 25 to guide the jaw plate 18 and prevent collision between the upper end of the jaw 22 and the inner face of the rigid jaw 1.

Referring to Fig. 5, the adjusting pin 12 has a rim 30 around its upper end, and a chain 31 connects the head of the pin loosely to the socket head 8. A spring catch is provided for holding the pin in place. The spring catch consists of a flat plate 32 fitting against the socket head 8 and secured in place by a cap screw 33, a spring arm 34 extending from the plate 32, and a guide arm 35 extending from the upper end of the spring arm 34 backwardly to the socket head 8, thus forming a point 36 adapted to snap back and forth over the rim 30, so that when the pin is inserted the rim 30 will engage the point 36 and snap by the point and then the point will hold the pin in place.

When it is desired to do hard work with the wrench, the jaw 23 should be used to engage the pipe, because downward motion of the handle will cause the head 9 to press upwardly against the extension bearing 13, whereas when the jaw 22 is used, as in ordinary work, the portion 14 of the socket head 8 is the only support, but for all ordinary purposes the wrench will work either way and in any possible position. If the position is such that the jaw plate 18 cannot work by gravity, it is only necessary to raise the jaw plate by hand, or move it by hand.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. An adjustable pipe wrench comprising a rigid jaw; a neck extending from the rigid jaw and having a slot; a socket head extending from the neck and having a socket opening radial to the axis and at right angles to the slot; a handle; a head upon the handle slidingly mounted in the socket opening; means for adjusting the handle head in the socket opening; a jaw plate recessed into the handle head and extending into the slot of the neck; means for slidingly connecting the jaw plate to the handle head; and jaws upon the jaw plate in opposition to the rigid jaw.

2. In an adjustable pipe wrench, a rigid jaw; a slotted neck extending from the rigid jaw; a socket head extending from the neck; a handle having a head slidingly and adjustably mounted in the socket head and having a slot in its inner end in line with the slot in the neck; a jaw plate slidingly mounted in the slot in the inner end of the handle head and in the slot of the neck, there being a curved backing at the bottom of the slot in the handle head upon which the jaw plate may rock; and means for limiting the movement of the jaw plate relative to the handle head.

3. In an adjustable pipe wrench, a rigid jaw, a neck extending from the rigid jaw and having a slot, a handle extending from the neck, a jaw plate extending through the slot, means for slidingly connecting the jaw plate to the handle, there being a curved backing behind the jaw plate upon which the jaw plate may rock, and jaws upon the jaw plate in opposition to the rigid jaw.

In testimony whereof I have signed my name to this specification.

ROBERT H. FULTON.